WHAT IS CLAIMED IS:

1. An isolated polypeptide comprising an amino acid sequence selected from the group consisting of a TCRγ Alternate Reading frame Protein ("TARP"), an immunogenic fragment thereof, a polypeptide with at least 90% sequence identity to TARP and which is specifically recognized by an antibody which specifically recognizes TARP, and a polypeptide which has at least 90 % sequence identity with TARP and which, when processed and presented in the context of Major Histocompatibility Complex molecules, activates T lymphocytes against cells which express TARP.

2. An isolated polypeptide of claim 1, wherein the polypeptide comprises the sequence of TARP.

3. An isolated polypeptide of claim 1, wherein the polypetide comprises the sequence of an immunogenic fragment of TARP.

4. An isolated polypeptide of claim 1, which polypetide has at least 90% sequence identity to TARP and is specifically recognized by an antibody which specifically recognizes TARP.

5. An isolated polypeptide of claim 1, which polypeptide has at least 90 % sequence identity with TARP and which, when processed and presented in the context of Major Histocompatibility Complex molecules, activates T lymphocytes against cells which express TARP.

6. A composition comprising a polypeptide of claim 2 and a pharmaceutically acceptable carrier.

7. A composition comprising a polypeptide of claim 3 and a pharmaceutically acceptable carrier.

8. A composition comprising a polypeptide of claim 4 and a pharmaceutically acceptable carrier.

9. A composition comprising a polypeptide of claim 5 and a pharmaceutically acceptable carrier.

10. An isolated, recombinant nucleic acid molecule comprising a nucleotide sequence encoding a polypeptide having the amino acid sequence of a TCRγ Alternate Reading frame Protein ("TARP"), an immunogenic fragment thereof, a polypeptide with at least 90% sequence identity to TARP and which is specifically recognized by an antibody which specifically recognizes TARP, and a polypeptide which has at least 90 % sequence identity with TARP and which, when processed and presented in the context of Major Histocompatibility Complex molecules, activates T lymphocytes against cells which express TARP.

11. The isolated, recombinant nucleic acid molecule of claim 10, comprising the sequence of TARP.

12. The isolated, recombinant nucleic acid molecule of claim 10 wherein the polypeptide is an immunogenic fragment of a TARP.

13. The isolated, recombinant nucleic acid molecule of claim 10 wherein the polypeptide has at least 90% sequence identity to TARP and which is specifically recognized by an antibody which specifically recognizes TARP.

14. The isolated recombinant nucleic acid molecule of claim 10 which polypeptide has at least 90 % sequence identity with TARP and, when processed and presented in the context of Major Histocompatibility Complex molecules, activates T lymphocytes against cells which express TARP.

15. The isolated, recombinant nucleic acid molecule of claim 10 which is an expression vector comprising a promoter operatively linked to the nucleotide sequence.

16. The isolated, recombinant nucleic acid molecule of claim 15, wherein said nucleotide sequence encodes a polypeptide having the amino acid sequence of a TCRγ Alternate Reading frame Protein ("TARP").

17. The isolated, recombinant nucleic acid molecule of claim 15, wherein said nucleotide sequence encodes a polypeptide having the amino acid sequence of an immunogenic fragment of TARP.

18. The isolated, recombinant nucleic acid molecule of claim 12, wherein said nucleotide sequence encodes a polypeptide with at least 90% sequence identity to TARP and which is specifically recognized by an antibody which specifically recognizes TARP.

19. The isolated, recombinant nucleic acid of claim 12, wherein said nucleotide sequence encodes a polypeptide which has at least 90 % sequence identity with TARP which, when processed and presented in the context of Major Histocompatibility Complex molecules, activates T lymphocytes against cells which express TARP.

20. A method comprising administering to a subject a composition, which composition is selected from the group consisting of: an isolated polypeptide having the amino acid sequence of a TCRγ Alternate Reading frame Protein ("TARP"), an immunogenic fragment thereof, a polypeptide with at least 90% sequence identity to TARP and which is specifically recognized by an antibody which specifically recognizes TARP, a polypeptide which has at least 90 % sequence identity with TARP and which, when processed and presented in the context of Major Histocompatibility Complex molecules, activates T lymphocytes against cells which express TARP, an isolated nucleic acid encoding one of these polypeptides, an antigen presenting cell pulsed with a polypeptide comprising an epitope of TARP, and cells sensitized in vitro to TARP, an immunogenic fragment thereof, a polypeptide with at least 90% sequence identity to TARP which is specifically recognized by an antibody which specifically recognizes TARP, or a polypeptide which has at least 90 % sequence identity with TARP which, when processed and presented in the context of Major Histocompatibility Complex molecules, activates T lymphocytes against cells which express TARP.

21. The method of claim 20 comprising administering to the subject TARP or an immunogenic fragment thereof.

22. The method of claim 20 wherein the polypeptide has at least 90% sequence identity to TARP and is specifically recognized by an antibody which specifically recognizes TARP.

23. The method of claim 20, wherein the polypeptide has at least 90 % sequence identity with TARP and, when processed and presented by an antigen presenting cell in conjunction with an MHC molecule, activates T lymphocytes against cells expressing TARP.

24. The method of claim 20 wherein the administration to a subject who suffers from prostate cancer.

25. The method of claim 20, wherein the administration is to a subject who suffers from breast cancer.

26. The method of claim 20, wherein the administration is to a female subject who has not been diagnosed with breast cancer.

27. The method of claim 20 wherein the administration comprises sensitizing CD8+ cells *in vitro* to an epitope of a TARP protein and administering the sensitized cells to the subject.

28. The method of claim 20, further comprising co-administering to the subject an immune adjuvant selected from non-specific immune adjuvants, subcellular microbial products and fractions, haptens, immunogenic proteins, immunomodulators, interferons, thymic hormones and colony stimulating factors.

29. The method of claim 20 comprising administering an antigen presenting cell pulsed with a polypeptide comprising an epitope of TARP.

30. The method of claim 20 comprising administering a nucleic acid sequence encoding polypeptide comprising an epitope of TARP, which nucleic acid is in a recombinant virus.

31. The method of claim 20 comprising administering a nucleic acid sequence encoding a polypeptide comprising an epitope of a TARP protein.

32. The method of claim 20 comprising administering an expression vector that expresses a polypeptide comprising an epitope of a TARP protein, which expression vector is in a recombinant bacterial cell.

33. The method of claim 20 comprising immunizing the subject with a expression vector that expresses a polypeptide comprising an epitope of a TARP protein, which expression vector is in an autologous recombinant cell.

34. The method of claim 27 wherein the CD8+ cells are T_C cells.

35. The method of claim 34 wherein the T_C cells are tumor infiltrating lymphocytes.

36. A method for detecting, in a male, a prostate cell of epithelial origin, or, in a female, a breast cancer cell, comprising detecting in a cell from said male or said female a nucleic acid transcript encoding TARP, or detecting TARP produced by translation of the transcript, whereby detection of the transcript or of the protein in a cell from said male identifies the cell as a prostate epithelial cell and whereby detection of the transcript or of the protein in a cell from said female identifies the cell as a breast cancer cell.

37. The method of claim 36, comprising detecting the transcript.

38. The method of claim 36, comprising detecting the protein.

39. The method of claim 36, comprising contacting RNA from the cell with a nucleic acid probe that specifically hybridizes to the transcript under hybridization conditions, and detecting hybridization.

40. The method of claim 36, comprising disrupting said cell and contacting a portion of the cell contents with a chimeric molecule comprising a targeting moiety and a detectable label, wherein the targeting moiety specifically binds to the protein, and detecting the label bound to the protein.

41. The method of claim 36, wherein the cell is taken from a lymph node.

42. The method of claim 36, wherein the cell is taken from a breast biopsy.

43. An antibody that specifically binds to an epitope of a TCRγ Alternate Reading frame Protein.

44. A method of modulating levels of TARP in a cell, said comprising introducing into said cell a composition selected from the group consisting of: a ribozyme which specifically cleaves a TARP-encoding nucleic acid, an antisense oligonucleotide which specifically binds to a TARP-encoding nucleic acid, a DNA binding protein which binds specifically to a TARP-encoding nucleic acid, and a nucleic acid encoding TARP operatively linked to a promoter.